UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 40508

1ST STREET

OVER THE

CANNON RIVER

DISTRICT 7 – LE SUEUR COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 5221

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected below water at Bridge No. 40508, Center Pier, was found to be in good condition with coating failure from the bottom of the cap to the channel bottom over 50 percent of the surface area of the piles. The channel bottom around the substructure units appeared stable with no significant scour or debris accumulations.

INSPECTION FINDINGS:

(A) The steel piles from the waterline to the channel bottom exhibited 1/8 to 1/4 inch diameter rust nodules over 10 percent of surface area, and 50 percent of coating loss and pitting (minimal with less than 1/32 inch depth) from bottom of the cap to channel bottom.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 40508

Feature Crossed: Cannon River

Feature Carried: 1st Street

Location: District 7 – Le Sueur County

Bridge Description: The superstructure consists of two spans of multiple concrete beams. The superstructure is supported by two reinforced concrete abutments and one steel pipe pile bent pier.

2. INSPECTION DATA

Professional Engineer/Team Leader: Daniel G. Stromberg, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan

Date: November 20, 2007

Weather Conditions: Cloudy, 48°F

Underwater Visibility: 1.0 foot

Waterway Velocity: Negligible / None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Center Pier.

General Shape: Center Pier consists of a single line of eleven steel pipe piles supporting a reinforced concrete cap.

Maximum Water Depth at Substructure Inspected: Approximately 4.6 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the west end of Center Pier.

Water Surface: The waterline was approximately 6.1 feet below reference.
Waterline Elevation = 998.8.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code B/11/07

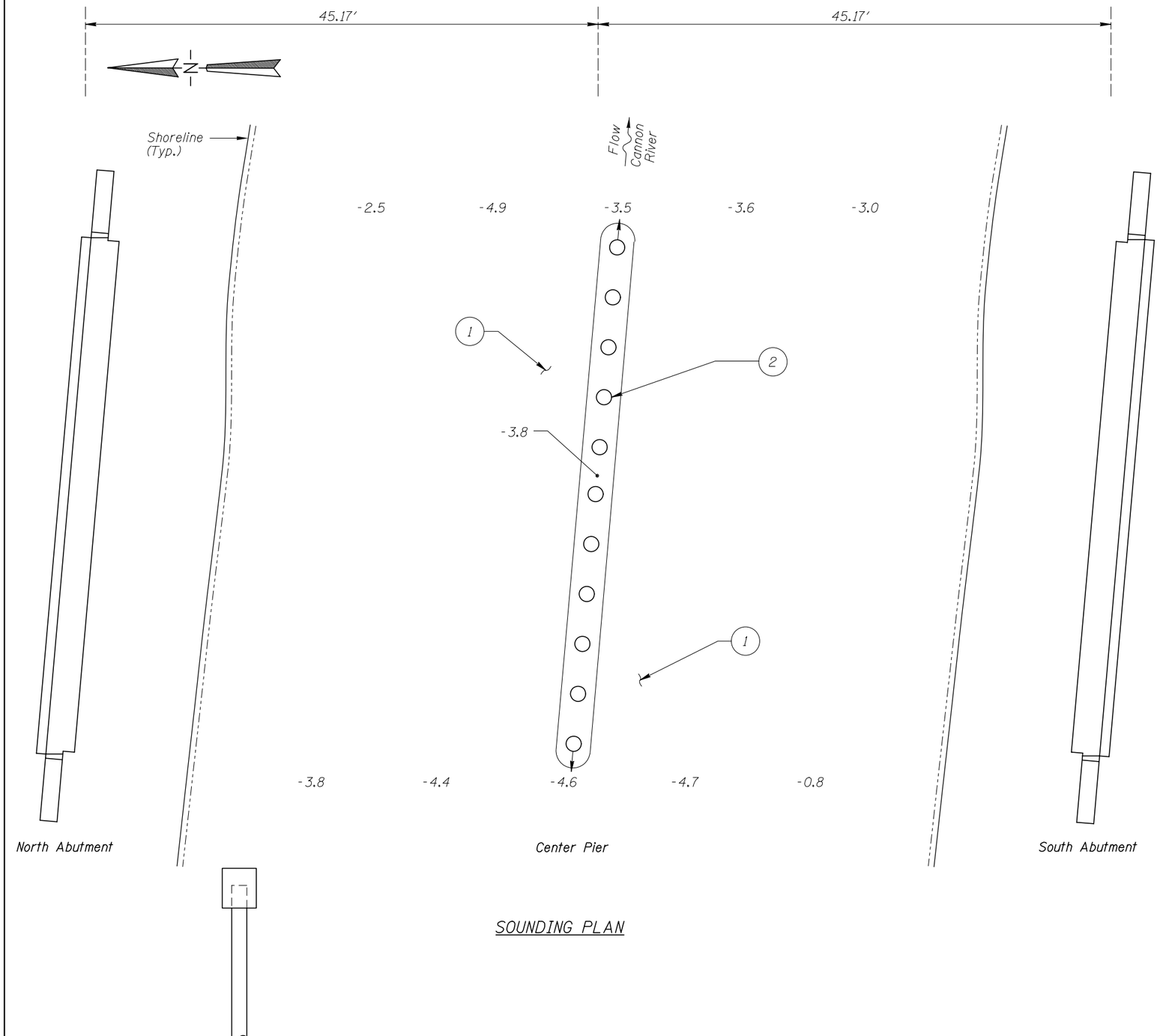
Item 113: Scour Critical Bridges: Code F/07

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes X No

Photograph 1. Overall View of Structure, Looking Northeast.

Photograph 2. View of Center Pier, Looking Southwest.



SOUNDING PLAN

TYPICAL END VIEW OF PIER

GENERAL NOTES:

1. The Center Pier was inspected underwater.
2. At the time of inspection on November 20, 2007, the waterline was located approximately 6.1 feet below bottom of pier cap at the downstream end of Pier. This corresponds with a waterline elevation of 998.8 feet based on design drawings.
3. Soundings indicate the water depth at the time of the inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The channel bottom consisted of sand and gravel with 4 inches of maximum probe rod penetration at the west end, and at the east end, it consisted of sand and gravel with 6 to 8 inches in diameter stones with 2 inches of maximum probe rod penetration.

(2) The steel pipe piles exhibited 1/8 to 1/4 inch rust nodules over 10 percent of the surface area from the waterline to the channel bottom, and 50 percent of coating loss and pitting (minimal with up to 1/32 inch penetration) from the pier cap to the channel bottom.

Legend

-7.0 Sounding Depth (11/20/07)

Cast-In-Place Concrete Pile Encased in Steel Shell

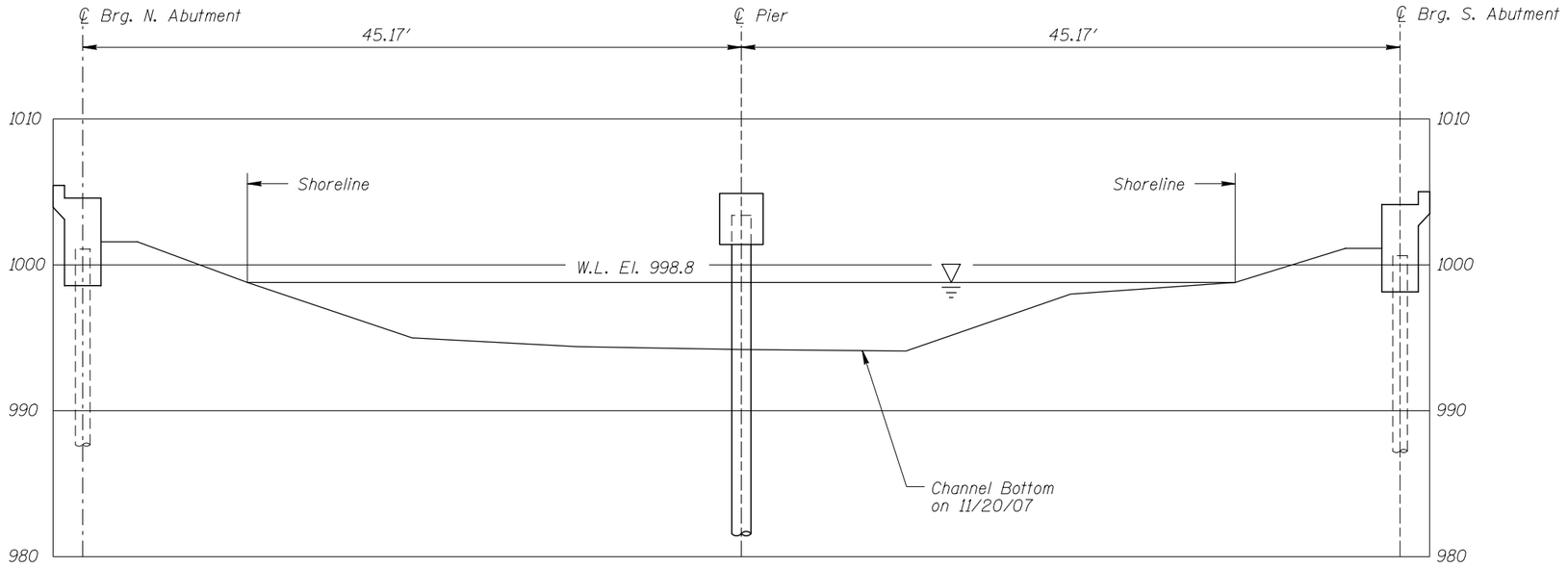
Cast-In-Place Concrete Battered Pile Encased in Steel Shell

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

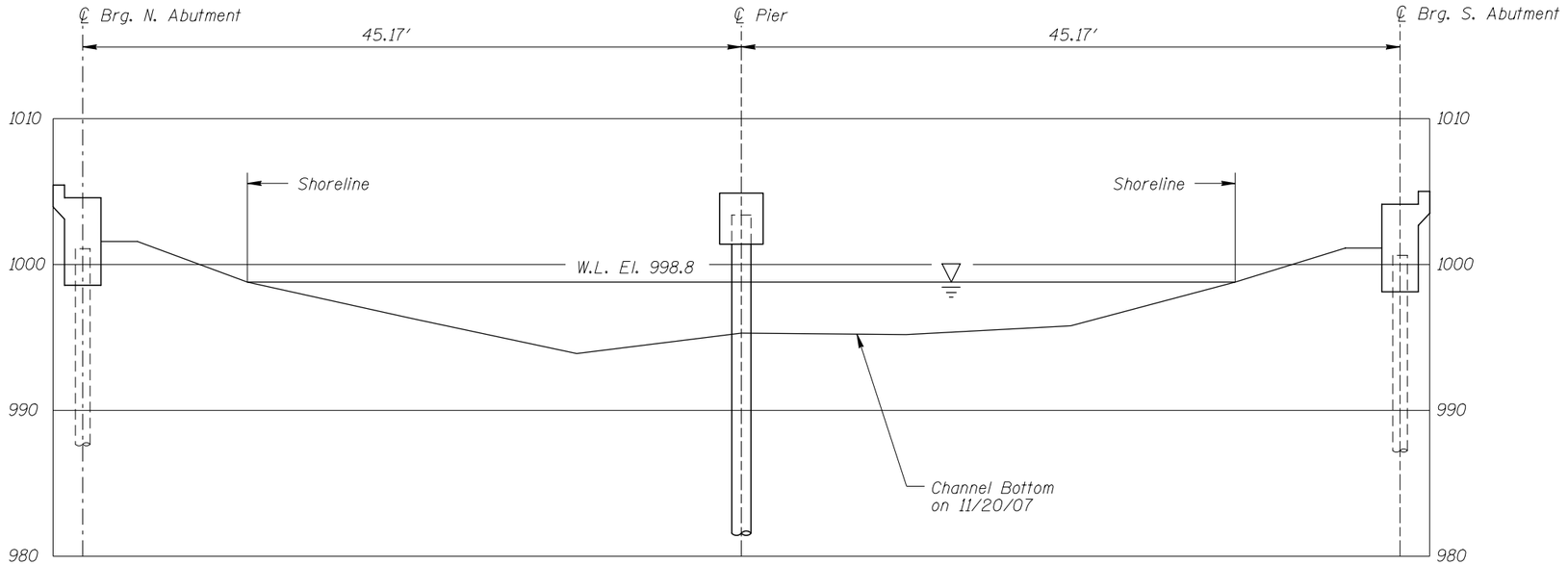
STRUCTURE NO. 40508
OVER THE CANNON RIVER
DISTRICT 7, LE SUEUR COUNTY,
CITY OF MONTEVIDEO

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS 123 North Wacker Drive Suite 300 Chicago, Il. 60606 (312) 704-9300 www.collinsengr.com	Date: NOV., 2007
Checked By: MDK		Scale: NTS
Code: 522I40508		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

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UNDERWATER BRIDGE INSPECTION

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UPSTREAM AND DOWNSTREAM
FASCIA PROFILES

Drawn By: PRH	COLLINS ENGINEERS 123 North Wacker Drive Suite 300 Chicago, Il. 60606 (312) 704-9300 www.collinsengr.com	Date: NOV., 2007
Checked By: MDK		Scale: 1"=10'
Code: 522140508		Figure No.: 2

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: November 20, 2007

ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E., S.E.

BRIDGE NO: 40508 WEATHER: Cloudy, 48°F

WATERWAY CROSSED: Cannon River

DIVING OPERATION: X SCUBA _____ SURFACE SUPPLIED AIR

_____ OTHER _____

PERSONNEL: Clayton G. Brookins, Valerie Roustan

EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 10:00 a.m.

TIME OUT OF WATER: 10:20 a.m.

WATERWAY DATA: VELOCITY Negligible / None

VISIBILITY 1.0 foot

DEPTH 4.6 feet maximum at Center Pier

ELEMENTS INSPECTED: Center Pier.

REMARKS: Overall, the submerged steel of the piles was in good condition with no significant deterioration. The steel piles from the waterline to the channel bottom exhibited 1/8 to 1/4 inch diameter rust nodules over 10 percent of surface area, and 50 percent of coating loss and pitting (minimal with up to 1/32 inch penetration) from bottom of the cap to channel bottom. No notable channel bottom deficiencies were encountered.

FURTHER ACTION NEEDED: _____ YES X NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 40508
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E., S.E.
WATERWAY CROSSED Cannon River

INSPECTION DATE November 20, 2007

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Center Pier	4.6’	7	N	N	9	N	7	8	N	N	N	8	N	7	N	7	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the submerged steel of the piles was in good condition with no significant deterioration. The steel piles from the waterline to the channel bottom exhibited 1/8 to 1/4 inch diameter rust nodules over 10 percent of surface area, and 50 percent of coating loss and pitting (minimal with up to 1/32 inch penetration) from bottom of the cap to channel bottom. No notable channel bottom deficiencies were encountered.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.